

From Pick-Up Artists to Incels: A Data-Driven Sketch of the Manosphere

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Abstract

Over the past few years, a number of “fringe” online communities have been orchestrating harassment campaigns and spreading extremist ideologies on the Web. In this paper, we present a large-scale characterization of the Manosphere, a conglomerate of predominantly Web-based misogynist movements roughly focused on men’s issues. We do so by gathering and analyzing 38M posts obtained from 7 forums and 57 subreddits. We find that milder and older communities, such as Pick Up Artists and Men’s Rights Activists, are giving way to more extremist communities like Incels and Men Going Their Own Way, with a substantial migration of active users. We also show that the Manosphere is characterized by a volume of hateful speech appreciably higher than other Web communities, including those, such as Gab, known to be hateful. Overall, we paint a comprehensive picture of the evolution of the Manosphere, highlighting the relevance of studying these communities using computational social science methods.

1 Introduction

The Web has advanced society in unprecedented ways; vast and easily accessible content has broadened our outlook, and social networks have helped us strengthen relationships and form new ones. However, online platforms are also exploited to spread hate and extremist ideologies, as well as wage information warfare at unprecedented scale and speed [3, 33, 49]. Furthermore, a number of relatively unknown social platforms have come into the spotlight due to their relationship to multiple violent events. For instance, Gab, 8chan, and 4chan have all played a role in the apparent radicalization of individuals that went on to alleged murderous actions [5, 13, 20]. Each of these communities was considered niche; yet, *niche* does not mean *unimportant*. In fact, these are often well-positioned within online cultures to have meaningful and impactful effects on the rest of the world [47].

A particularly impactful conglomerate of “niche” communities is the *Manosphere*. It includes communities aligned by their common interest in masculinity and its alleged crisis [36], e.g., Pick Up Artists (PUAs), Men’s Rights Activists (MRAs), Men Going Their Own Way (MGTOW), and Involuntary Celibates

(Incels, see next section for more details about each group). Over the past years, these communities have reportedly grown in size and involvement in worrying issues like online harassment and real-world violence [19].

So far, researchers have mostly studied the Manosphere, or components of it, though deep domain experience and immersion into the material, drawing from a tradition of diverse concepts, such as techno-sociological theories (e.g., toxic disinhibition) and views on patriarchal societal constructs [21, 23, 25, 37, 40, 42, 66]. However, there still are many open research challenges prompting the need for large-scale, data-driven approaches. More specifically, Manosphere communities are scattered through the Web, in a loosely connected network of subreddits, blogs, YouTube channels, and forums [35], therefore, large-scale analysis can grasp general trends and the evolution of such a complex ecosystem. Overall, we set to understand aggregate trends, which could later inform relevant directions for more in-depth studies, as well as verify or falsify existing hypothesis. In this context, we set to address the following research questions:

1. How has the Manosphere evolved over the last decade?
2. Are Manosphere communities becoming more toxic and/or hateful over time?
3. How do these communities compare to each other in terms of users? Do users migrate between them?

To answer these questions, we build and analyze a large dataset with data collected from seven forums (7.5M posts) and 57 subreddits (30.9M posts) related to the Manosphere. We then annotate and categorize each forum and subreddit according to the most relevant movement (e.g., Incels, MGTOW, PUA, etc.), and analyze the dataset by focusing their evolution over time. Our analysis builds on two main points of view: 1) the migration of users across multiple Manosphere communities; and 2) the spread of hateful and toxic content in these communities. To shed light into these points of views, we perform a comprehensive user-based analysis and use Google’s Perspective API [52], a publicly available API that uses machine learning techniques to provide scores on how rude, hateful, aggressive, and toxic, a post is.

<p>Men’s Rights Activists (MRAs) focus on men-related social issues (e.g., family law, parenting, reproduction, circumcision, etc.) and institutions (schools, health institutions, military, etc.), which they argue discriminate against men [17, 43]. The MRA movement has been labelled many times as misogynistic and/or hateful in both the literature [17, 41] and the media [12, 58]. For instance, The Southern Poverty Law Center stated that, while MRAs “voice legitimate and sometimes disturbing complaints about the treatment of men, what is most remarkable is the misogynistic tone that pervades so many” [24].</p>	<p>Men Going Their Own Way (MGTOWs), similar to MRAs, believe that the society is rigged against men [37]. They also espouse the abandonment of women and even of western society (to levels which may vary). The existing system is impossible to amend, so the solution is to “go your own way.” While MRAs want to change politics and the rule of law, MGTOWs advocate for men abstaining from serious relationships with women especially marriage and cohabitation [63]. This disbelief with the existing structure is often paired with extreme anti-feminism and misogyny [37].</p>	<p>Pick Up Artists (PUAs) are a community built around what they call “game,” i.e., techniques, strategies, and mindsets that help men pick up and date women [36]. Although this may seem unrelated to the Manosphere, “game” often involves objectifying women and promoting harassment techniques, such as <i>negging</i> [19], i.e., insulting women to overthrow their confidence. The PUA community conceptualizes the crisis of masculinity in terms of the feminization of the man, who is thought to be a “fool at the hands of women” [36].</p>	<p>Involuntary Celibates (Incels) are a group, of mostly of young men, united by a strong feeling of rejection and rage towards the opposite sex. Incels rose to the mainstream due to their association with mass murderers [7]. The community is obsessed with theories about looks and relationships, and members often express desire to hurt others or themselves. Incels abide by what they call “the black pill,” a collection of facts about romance and dating which would show there is no personal solution to systemic dating problems for men [29, 53].</p>
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Table 1: Short description of various communities of the Manosphere, inspired by [36].

Main Findings. Our analysis yields several interesting findings:

1. Over the past decade, the Manosphere evolved into a diverse ecosystem of Web communities with various interests/ideologies. The growth of communities which espouse more extreme positions against women and women’s rights such as MGTOW and Incels overshadows older communities such as PUA and MRA. This happens not only on dedicated forums, but also on Reddit.
2. Forums related to the Manosphere are characterized by a substantial volume of hate speech, more so than Manosphere-related subreddits, which exhibit similar toxicity as other fringe Web communities like Gab. Also, we find that Manosphere communities are substantially more hateful than a sample of random users on Reddit, while on 4chan we find substantially more hate speech than Manosphere communities.
3. There is substantial migration, on Reddit, from milder communities such as MRA and PUA towards more extreme ones like MGTOW, TRP, and Incels. We also find that users who migrate from the former to some of the latter communities become more toxic according to Google’s Perspective API.

2 Background & Related Work

The Manosphere is loosely defined as the collection of groups and communities aligned by their common interest in men’s issues. Since the creation of the term around 2009 [9], it has been adopted by both those within the Manosphere [32] as well as the media [60]. Overall, the growth of these groups has also been associated with some of its communities being involved in worrying issues like online harassment and real-world violence [19].

Origins of the Manosphere. The “roots” of the Manosphere can be traced back to the Men’s Liberation Movement in the 60’s and 70’s, itself linked to second-wave feminism [44]. The

movement was a critique of traditional male gender roles, which were seen as oppressive [44]. Coston and Kimmel [17] argue: “If women were imprisoned in the home (...) then men were exiled from the home, turned into soulless robotic workers, in harness to a masculine mystique, so that their only capacity for nurturing was through their wallets.”

In the 70’s, the Men’s Rights movement departed from Men’s Liberation. This new branch saw the “problem” men experienced as stemming more from feminism and women empowerment than oppressive gender roles [44]. So-called Men’s Rights Activists would focus on men’s issues such as health problems, military conscription, divorce, and custody laws. In this new ideology, women’s liberation would be inflicting on men “the worst of both worlds,” and the movement’s empathetic tone turned into anger [17].

Many of the figures at the forefront of the Men’s Rights Movements were once associated with second-wave feminism; Warren Farrell, for example, led a men’s group within the National Organization for Women. He then, in 1993, wrote the *Myth Of Male Power* [22]. This book became a fundamental text to Men’s Rights Activists, claiming that *men*, not women, are systematically disadvantaged in modern society. Farrell’s work has repeatedly been criticized as simplistic and insensitive to women’s struggle for equality [8, 45].

Manosphere on the Web. Ging [23] argues that many traditional theories on views of both masculinity and misogyny are expressed in new ways online. As modern society has generally accepted the core ideals of gender equality, she observes an increase in “a more virulent strain of anti-feminism online,” positing that the Web’s facilitation of information dissemination across boundaries and multiple platforms has greatly increased the spread of extreme anti-feminist views, along with misogyny and violent rhetoric.

Farrell et al. [21] present a large-scale analysis of Manosphere-related subreddits with a focus on misogyny.¹ They build a lexi-

¹Please note that this work is by Tracy Farrell, and not Warren Farrell.

1. Incels.is: Forum created hours after the banning of <i>/r/Incels</i> [48]. It is the largest Incel forum in activity, allowing speech which would likely be censored in platforms like Reddit [30]. It does not allow women to join as they would disrupt discussion [6].	5. SlutHate: Previously available at <i>sluthate.com</i> and now at <i>redpilltalk.com</i> , the forum’s original purpose was to criticize pick-up-artists [31]. Yet, users eventually espoused Incel ideas: e.g., <i>LMS</i> , women are attracted by Looks, Money, and Status, instead of personality [55].
2. RooshV: Created by prominent ex-PUA Daryush V. It was a place to discuss game, and sex-tourism, but it increasingly became fertile ground for anti-feminist and Alt-right narratives [67]. The discourse changed so much that in 2019, Daryush condemned extramarital sex as sinful [61].	6. MGTOW Forum: The largest MGTOW forum, which exists since 2014. Threads usually discuss alleged negative female traits, society’s supposed systemic bias against men, and how men should abandon women altogether [54].
3./4. The Attraction & MPUAForum: Older forums dedicated to pick-up-artistry. The Attraction is run by <i>lovesystems.com</i> [39], and MPUAForum featured coaches (e.g. Gambler [46]), these companies and individuals sold courses, and event tickets.	7. AVFM: Official forum from Paul Elam’s prominent MRA Website <i>A Voice for Men</i> [14]. It dates back to 2012, and the threads largely reflect the topics that govern the MRA movement: anti-feminism, men’s issues (divorce, men’s health, reproductive choices).

Table 2: Short description of the Manosphere-related forums in our dataset.

con from seven dictionaries related to hate, harassment, violence, etc., and manually categorize the terms in this meta-lexicon into one of nine misogynistic categories informed from feminist theory (e.g., “belittling,” “patriarchy,” “physical violence,” etc.). Out of 2,454 terms, they select 1,300 for their final lexicon, which is then used to measure the prevalence of terms from each category in 5.7M posts across six subreddits identified as being Manosphere-related.

Lilly [36] offers an overview of the representational politics of the Manosphere. Through a mixed-methods critical discourse analysis, she presents a taxonomy for the communities and highlights the key ideas of the Manosphere: masculinity is under siege by feminizing forces; and feminism is as hypocritical and oppressive. Her taxonomy considers 4 communities, Men’s Rights Activists (MRA), Men Going Their Own Way (MGTOW), Pick Up Artists (PUA), and Involuntary Celibates (Incels). According to her, while the first two communities see this “crisis in masculinity” in society, which would be increasingly “feminized,” the two latter see the crisis in men themselves. Inspired by her taxonomy, we provide an overview of prominent communities of the Manosphere in Table 1.

Fringe communities and online hate. Prior work has studied other fringe communities, such as 4chan and Reddit, via quantitative analysis. Bernstein et al. [11] analyze 5M posts on 4chan’s random (*/b/*) board to examine the effect of anonymity and ephemerality, while Hine et al. [26] focus on the politically incorrect board (*/pol/*), studying 8M posts collected over two and a half months. Zannettou et al. [69] study the influence of fringe communities with respect to images, finding that racist memes are very common in */pol/* and Gab, and that */pol/* and the *The_Donald* subreddit are the most influential Web communities with respect to the dissemination of memes.

Chandrasekharan et al. [15] examine 100M posts and comments from two banned subreddits, */r/fatpeoplehate* and */r/CoonTown*, and measure hate speech on them before and after the ban. They find that the ban had a positive effect on the platform as the users who continued posting drastically reduced their hate speech usage. Lottridge and Bentley [38] study different ways individuals share news with others online; through a large survey and an artifact analysis, they find differences in motivations and frequency of sharing news in public, social and private platforms.

Finally, other researchers have studied hate speech on social

Forum	#Threads	#Users	#Posts	Start	End	
Incels.is	117,592	5,933	2,436,053	2017-11	2019-06	
Rooshv	47,203	13,598	1,490,231	2008-08	2019-06	
The Attraction	133,520	45,937	892,715	2005-11	2019-06	
MPUAForum	165,270	59,332	890,651	2006-03	2019-06	
SlutHate	118,927	7,900	883,867	2014-05	2019-06	
MGTOW Forum	52,022	3,762	794,698	2014-07	2019-06	
AVFM	20,159	1,804	211,070	2012-09	2019-06	
Tot. Forums	654,693	138,266	7,599,285	2005-11	2019-06	
Category	#Subr.	#Threads	#Users	#Posts	Start	End
Incels	18	419,819	197,196	6,413,459	2010-09	2019-04
Health	3	1,095,014	737,505	6,362,386	2008-12	2019-04
TRP	12	272,673	162,192	5,286,137	2012-10	2019-04
MRA	11	241,053	214,061	4,691,807	2008-03	2019-04
MGTOW	3	199,702	85,268	3,728,367	2011-06	2019-04
Criticism	3	74,639	121,836	2,418,427	2013-01	2019-04
PUA	7	228,208	177,095	2,041,313	2008-04	2019-04
Tot. Reddit	2,531,108	1,432,956	30,941,896	2008-03	2019-04	
Total	3,185,801	1,571,222	38,514,181	2005-11	2019-06	

Table 3: Overview of our dataset.

networks like Twitter [18, 50, 56, 62], Reddit [16, 50], Facebook [10], YouTube [51], Instagram [28], and Gab [68] as well as with respect to news sharing [38].

3 Datasets

Throughout the paper, we use data we have collected from two main sources: 1) seven forums related to the Manosphere; and 2) posts from 57 subreddits related to the Manosphere.

Forums. Forums are an interesting medium through which to study the Manosphere, as they allow us to track communities that were prominent before Reddit (e.g., PUAs). Moreover, they often involve discourse considered too toxic for mainstream social media platforms [48]. Thus, we crawl multiple forums related to four Manosphere-related communities: Incels, PUA, MRA, and MGTOW, based on manual visits of specialized Wikis—specifically, IncelsWiki, RationalWiki, and RedPillWiki.²

We focus on forums that: 1) are popular and/or active for a long period of time; 2) do not require registration to see all posts;

²Sources: <https://incels.wiki>, <https://incels.wiki/w/incels.co>, <https://rationalwiki.org>, and <https://redpilltalk.com>.

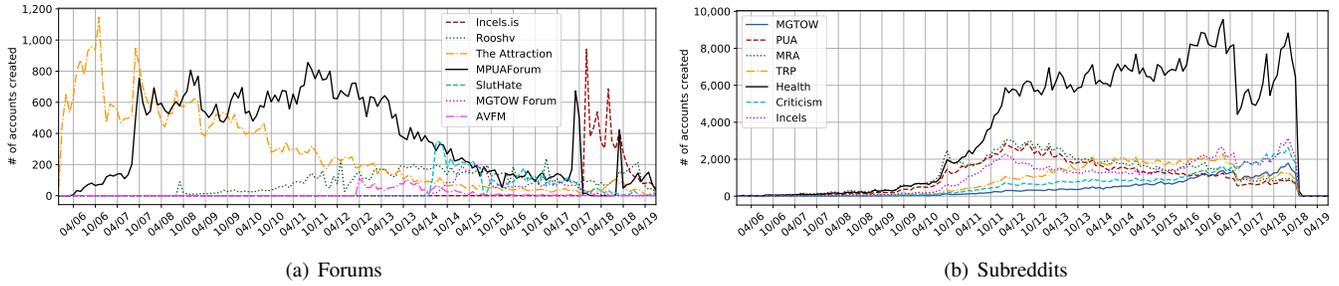


Figure 1: Overview of account creations on each platform over time.

and 3) are broadly related to the communities of interest. We select seven forums: Incel.is, Rooshv, The Attraction, MPUA Forum, SlutHate, MGTOW, and AVFM.³ Table 2 provides a description for each of the collected forums. Notable exceptions that we choose not to include are *lookism.net* and *loveshy.com*, as the former is focused in one specific aspect of the Incel community and the latter requires registration to access the posts.

For each forum, we build a custom crawler, which we run between June 19–30, 2019. Table 3 (top part) provides, for each forum, the number of threads, users, and posts, as well as the relevant dates. Overall, we gather 7.5M posts from 138K users. For ethical reasons, we do not make any attempt to link users across forums, so if a user that has accounts on two forums it will be counted twice.

Reddit. We first retrieve all submissions and comments made available via Pushshift between June, 2005 and April, 2019.⁴ Then, we identify a set of subreddits relevant to the Manosphere by finding references to subreddits on the Incels Wiki page as well as popular subreddits like */r/mgtow*, */r/Braincels*, */r/TheRedPill*, and so on. In the end, we select 62 subreddits. The list of the subreddits, along with the source that referred to each of them and basic statistics, is available *anonymously* from [4].

By parsing Pushshift’s monthly dumps, we extract all submissions and comments for each of the subreddits. Note that we find data for 57 out of 62 subreddits, as five subreddits were banned before Pushshift collected data for them. Ultimately, we gather a set of 29M posts from 1.3M users. Next, we group the subreddits as per seven categories, largely based on the taxonomy of Manosphere subcultures [36]:

1. **Incels:** discusses involuntary celibacy or related concepts, e.g., the Black Pill.
2. **MGTOW:** discusses the MGTOW movement.
3. **PUA:** discusses pick up artistry and game.
4. **MRA:** discusses the MRA movement and its broader agenda (e.g., anti-circumcision, alimony).
5. **Criticism:** criticizing or opposing the Manosphere.
6. **Health:** dealing with health conditions (mental or not).
7. **TRP:** associated with */r/TheRedPill*, as well as other subreddits that do not really fit any other category.

³See: <http://incels.is>, <https://rooshvforum.com>, <http://theattractionforums.com>, <https://pick-up-artist-forum.com>, <http://sluthate.com>, <http://mgtow.com/forums>, <http://forums.avoiceformen.com>.

⁴<https://files.pushshift.io/reddit/>

Note that the last three categories are not in the taxonomy of [36]. While **Health** and **Criticism** are auxiliary to the communities being studied, the **TRP** category does not fit very well in other categories, as it encapsulates several different ideas from across the Manosphere.

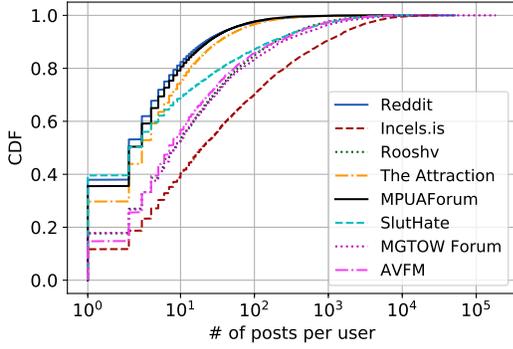
Annotation. To assign each subreddit to one of the seven categories, we do manual annotation with seven annotators. The annotators spent a minimum of ten minutes browsing each of the subreddits and reading random posts from them to select one of the seven categories. Annotators are authors of this paper, they are familiar with scholarly literature on the Manosphere, and had no communication whatsoever about the task at hand. Subreddits are assigned to a category after majority agreement. We also use the Fleiss’ Kappa Score to assess the agreement between the annotators, finding it to be 0.91. This is regarded as “almost perfect agreement,” hence denoting high inter-annotator agreement [34]. In Table 3 (bottom part), we provide the number of subreddits, threads, users, and posts, for each of the categories.

Ethics. We follow standard ethical guidelines [57], not making any attempt to de-anonymize or link users across platforms, encrypt data at rest, etc. We work exclusively with publicly available data and as such our work is exempt from IRB approval at our institution.

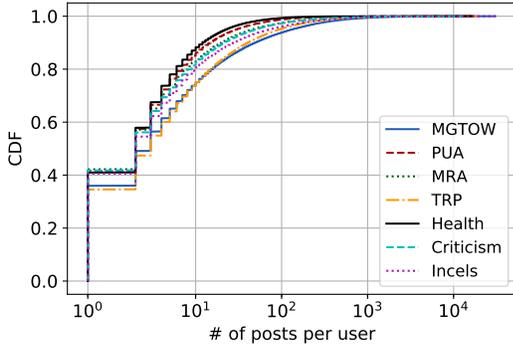
4 Studying the Manosphere

We now present a multi-faceted analysis of our dataset, analyzing account creations, user and thread activity, and the temporal evolution of the communities. Overall, we provide an overview of the Manosphere and how it has evolved over several years.

Account Analysis. We start by analyzing the user base of each community over time. Fig. 1 plots the number of accounts created on each forum and each subreddit. Perhaps unsurprisingly, Reddit (Fig. 1(b)) involves a larger number of accounts compared to the forums (Fig. 1(a)). For the latter, we find that during the early years (2006–2010) the Attraction and the MPUAForum were attracting the most new users. This coincides with a time where PUAs got a lot of attention to the media. In September 2005, Neil Strauss wrote “The Game” [1], an exposé of the PUA community that was featured as a New York Times Bestsellers, and between 2007 and 2008 the television show “The Pick Up Artist” aired on VH1 [2]. Also, between 2014 and 2017, most of the forums were getting similar numbers of new users: to confirm this we examine the rate of user growth of each forum



(a) Forums



(b) Subreddits

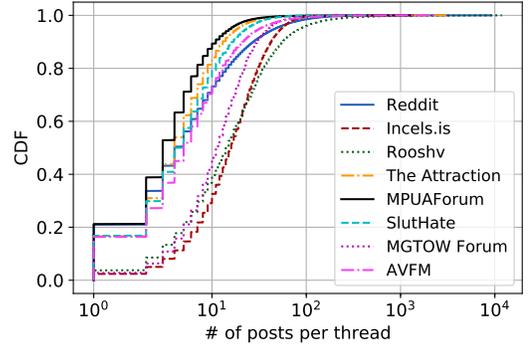
Figure 2: CDF of the number of posts per user.

normalized by the number of users on the forum, finding that indeed all forums exhibit similar growth rates (we omit the figure due to space constraints). We also note that in Nov. 2017 there is a substantial spike in new users in the Incels.is forum, which coincides with the ban of */r/Incels* on Reddit [64]. This likely indicates that users migrated to the forum after the ban. Lastly, we note that the SlutHate and MGTOW Forum started gaining substantial numbers of users after 2014.

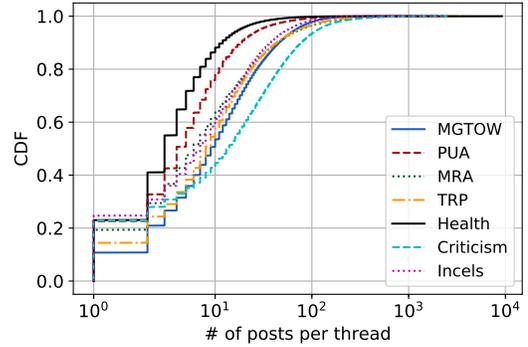
We also study account creations on Reddit by looking into each category of subreddits (Fig. 1(b)). We find that, on Reddit, the Manosphere started gaining traction in 2011 (over 1K new users per month for most of the categories); also, over the years, most categories of subreddits attract a relatively stable number of new users over time, indicating that the Manosphere ecosystem on Reddit is steadily growing.

User Activity. Next, we analyze how users engage with the platforms and how active they are. To this end, in Fig. 2, we plot the Cumulative Distribution Function (CDF) of the number of posts per user. To assess whether the distributions have statistically significant differences, we run a two-sample Kolmogorov-Smirnov test (KS test) on each pair of distributions. We find that, for all pairs, the distributions present statistically significant differences ($p < 0.01$) with the exception of the pairs Rooshv-MGTOW Forum ($p = 0.2$), Rooshv-AVFM ($p = 0.04$), and AVFM-MGTOW Forum ($p = 0.07$).

Fig. 2(a) shows that users from Incels.is tend to be more active w.r.t. how much they post (median of 20 posts per user),



(a) Forums



(b) Subreddits

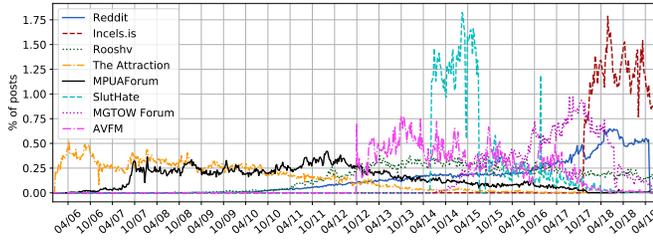
Figure 3: CDF of the number of posts per thread.

followed by the Rooshv and the MGTOW forum (median 8), and the AVFM forum (median 7), while the MPUAForum is the community with the least engagement per user (median 2). Fig. 2(b) also shows that users in each category of subreddits have relatively similar posting behavior: in all categories, the median number of posts per user is between 2 and 3.

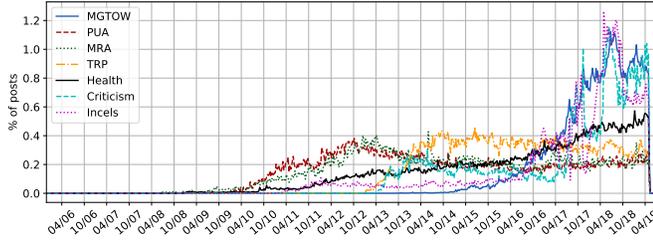
Overall, we find that users who are active in specific, standalone forums related to the Manosphere are more active within these communities, while on Reddit, there is a larger number of users with substantially fewer posts.

Thread Activity. We also measure how users post *within* threads. Fig. 3 plots the CDF of the number of posts per thread, showing that threads from Incels.is tend to be longer (median number of posts is 16), followed by Rooshv (14), MGTOW forum (11), and AVFM (5). This is in line with the user activity analysis above. However, when looking at Fig. 3(b), we observe a few important differences: specifically, threads from the Criticism category tend to be longer (median 16 posts), followed by MGTOW (9), TRP (8), and the Incels category (7). Again, we assess whether these distributions have statistically significant differences using a KS-test on each pair of distributions finding that all pairs have statistically significant differences ($p < 0.01$).

Temporal Overview. Next, we analyze the posting activity over time, aiming to assess the popularity of each platform and how it evolves over time. Fig. 4 plots the percentage of weekly posts in each forum/category of subreddits. We observe that early on (between 2006 and 2010) the Manosphere ecosystem mainly



(a) Forums



(b) Subreddits

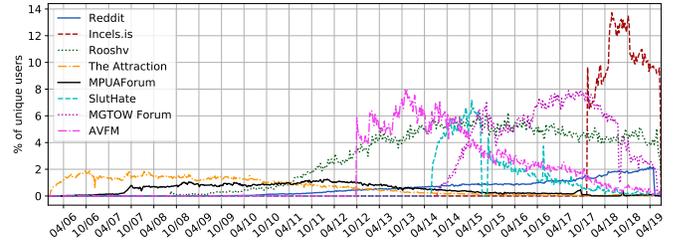
Figure 4: Percentage of weekly posts for each platform.

consisted of communities related to Pick Up Artistry (e.g., The Attraction and MPUAForum). Over time, these forums lost popularity, with their activity in 2017 being almost negligible. We also find that Manosphere-related activity on Reddit steadily increases over time, which is inline with previous work [21].

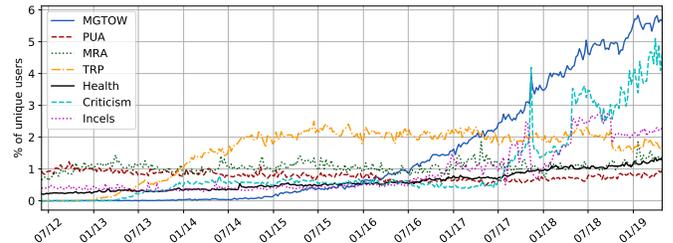
During the past 6 years (from 2013 to 2019), the Manosphere ecosystem has substantially evolved, now involving a large number of diverse communities like the MGTOW and SlutHate forums (started in 2014) as well as the Incels.is forum (started in 2017). Again, the inception of the latter coincides with the */r/Incels* subreddit being banned (note the dip in activity on the Reddit platform during November 2017 in Fig. 4(a)). When looking at the temporal evolution of the categories of subreddits (Fig. 4(b)), we observe that Incels, MGTOW, and Health are getting increasingly popular over time. Again, during the early years (between 2010 and 2013), the most popular categories of subreddits were related to PUA and MRA. Finally, we find that subreddits that criticize the Manosphere seem to slightly decrease in popularity after the summer of 2017. Overall, these findings indicate that communities like Incels and MGTOW, are becoming more popular over time within Reddit.

To assess whether these communities attract new users over time, and whether these users are actively participating in the discussions, we also plot the percentage of unique users that were active in each community; see Fig. 5. For Reddit (Fig. 5(b)), the percentage of active users increases, while for the forums, this seems to fluctuate over time (Fig. 5(a)). The subreddits with the most notable increase are in the MGTOW category, followed by the Incels category. Once again, this confirms the growing popularity of communities like MGTOW and Incels on mainstream Web platforms like Reddit.

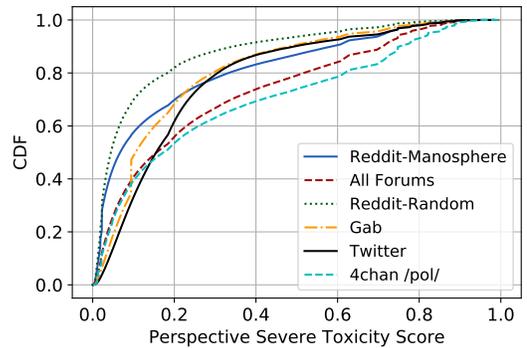
Take-aways. We show that newer communities linked to more extreme views, such as Incels and MGTOW, are becoming more popular over time, while others, like PUAs and MRAs, have stable or declining popularity. As for the forums, we find that



(a) Forums



(b) Subreddits

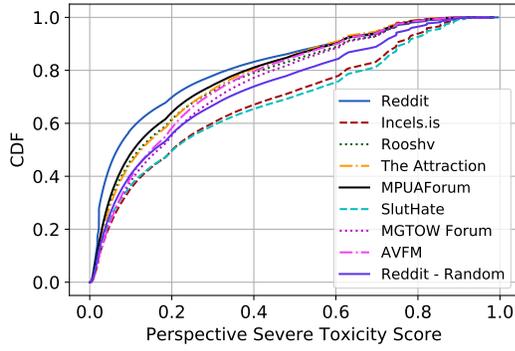
Figure 5: Percentage of active users per week.**Figure 6:** CDF of severe toxicity scores for all Manosphere forums, the Reddit categories, and the control datasets.

Incels.is consists mainly of power users (5.9K users made 2.4M posts). Furthermore, we find that threads in Incels and MGTOW forums tend to be longer while threads in PUA forums are substantially shorter. This likely indicates that discussions related to Incels and MGTOW are more interesting or intense, hence generally longer.

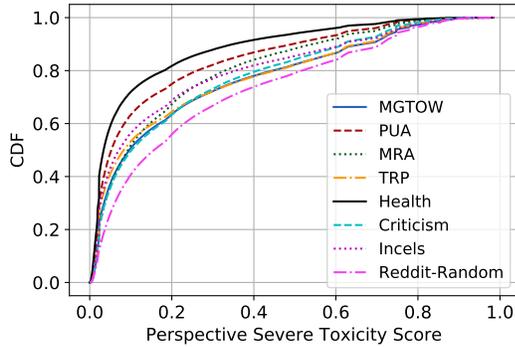
5 Toxicity in the Manosphere

Next, we study the spread of hate speech in the Manosphere and how the prevalence of hate speech compares to other mainstream and fringe Web communities. To do so, we rely on Google’s Perspective API [52], which provides a toxicity score assessing how rude/aggressive/hateful a comment is. More specifically, we run all posts from all forums as well as the subreddits through the API and obtain the toxicity score for each post. We use the “Severe Toxicity” score provided since it more accurately rates the positive use of profanity [52].

Control Datasets. We also collect and analyze a few *control* datasets to compare these results to the Manosphere communi-



(a) Forums



(b) Subreddits

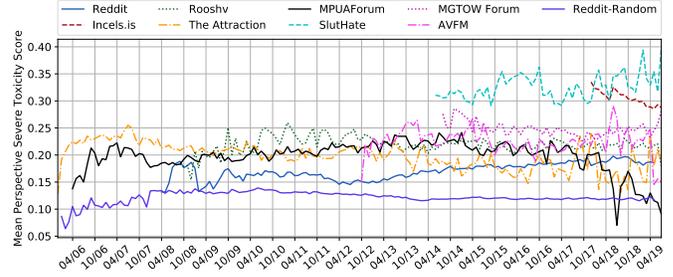
Figure 7: CDF of severe toxicity scores for a) Reddit as a whole and all the forums, and b) Reddit broken down into categories.

ties. We use a dataset from Gab consisting of 29M posts, using the publicly available corpus from Pushshift, a random dataset from the Reddit corpus, as well as random datasets from Twitter and 4chan’s Politically Incorrect board (/pol/).

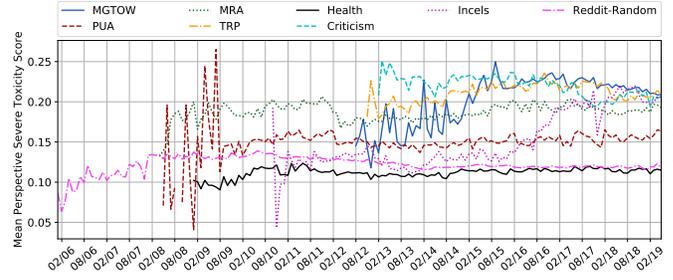
To extract the random dataset from Reddit, we parse all posts between Jun 2005 and April 2019, and generate a random sample of 0.5% of all posts (amounting to 28M posts). For Twitter, we collect all public tweets from the 1% Twitter stream API from February 2017 to April 2019, and discard all tweets for which the language was *not* set as English. We then uniformly sample these to obtain a dataset of similar size as the others (with 30M tweets). For 4chan’s /pol/, we use the same methodology as on Reddit, selecting 25% of all posts (32M posts) from the dataset collected by [26], with all posts from June 2016 to September 2019.

Toxicity Analysis. Fig. 6 shows the CDF of the severe toxicity scores for each post in our Manosphere as well as control datasets. Notice that 4chan’s /pol/ is the community with the highest volume of toxic and hateful posts, followed by the Manosphere forums and Twitter. We also note that Manosphere-related subreddits and the random sample from Reddit exhibit substantially less severe toxicity compared to /pol/, the Manosphere forums, and Twitter.

Next, we further analyze the Manosphere-related communities by studying the spread of toxic content w.r.t. specific forums and categories of subreddits. In Fig. 7, we plot the CDF of the



(a) Forums



(b) Subreddits

Figure 8: Monthly mean severe toxicity scores of posts for: a) Reddit as a whole and all forums, and b) Reddit broken down into categories.

toxicity scores from the forum and subreddit posts. We observe that the most hateful forums are SlutHate and Incels.is (median toxicity score 0.20), followed by MGTOW forum (0.16), and AVFM (0.15). Interestingly, all the subreddits in our dataset (“Reddit”) considered as a whole have substantially lower toxicity scores (0.06), possibly indicating that Reddit has stricter moderation policies that remove hateful content allowed in the forums.

We then look into the subreddit categories separately in Fig. 7(b). We also compare the Manosphere subreddits to the random Reddit sample, finding a larger degree of toxic content (median toxicity score 0.15). For the Manosphere-related subreddits, we find that subreddits related to criticizing the Manosphere are the most hateful (median toxicity score of 0.10), followed by MGTOW (0.09), and MRA (0.09). Perhaps unsurprisingly, subreddits related to Health have the least toxic posts (median toxicity score 0.03). We again run pairwise KS-tests in each pair of distributions presented in Fig. 6 and Fig. 7, finding that each pair exhibits statistically significant differences ($p < 0.01$).

Fig. 7 provides a general overview of the prevalence of hate speech in each community: yet, it does not allow one to track its change over time. Thus, in Fig. 8 we plot the mean toxicity score for each month for each community. We make several observations. First, in Incels.is forum the toxicity scores decrease over time (see Fig. 8(a)), while on Reddit, in Incel-related subreddits toxicity scores increase over time (see Fig 8(b)). Second, for most of the forums (Rooshv, MPUAForum, MGTOW Forum, AVFM) we observe that the mean toxicity scores over the course of our datasets are stable. Third, by looking at the categories of subreddits (see Fig 8(b)), we observe three main trends. First, subreddits that have a stable toxicity score over time like Health, PUA, MRA. Second, subreddits where toxicity scores increase

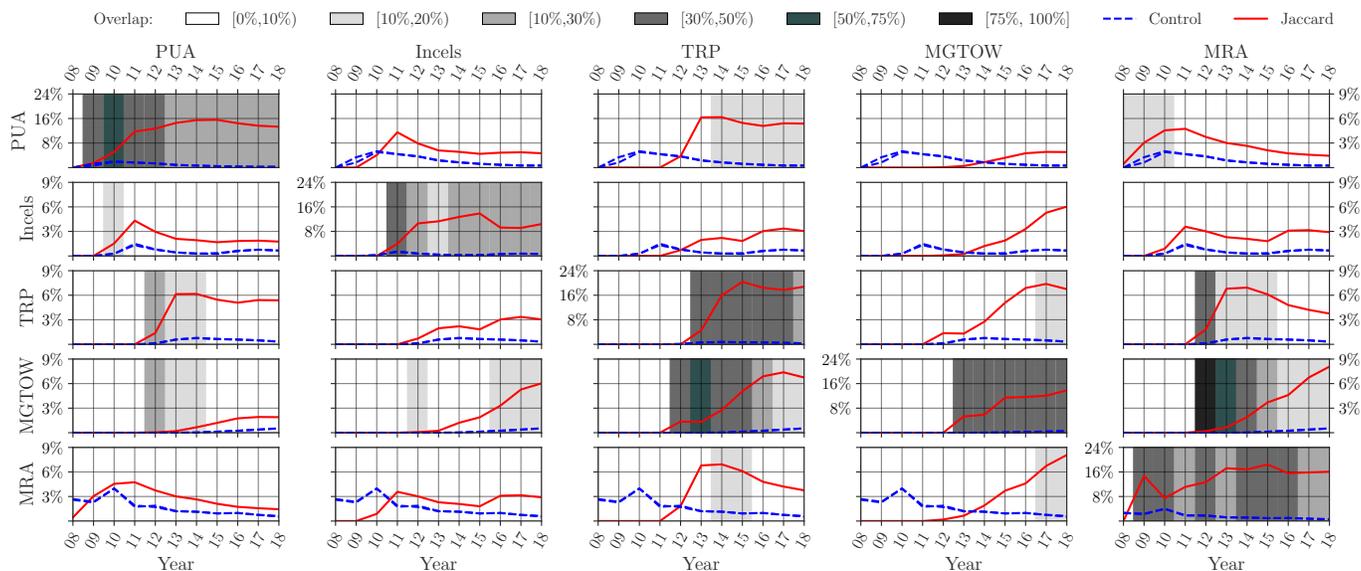


Figure 9: Intersection of users among subreddits in the communities of interest. The plot reads like a matrix, where each cell shows the similarity between two communities (whose names can be read in the columns and in the rows). The red line in each cell shows the Jaccard similarity between the two communities, and the dotted blue line shows the similarity between the community in the column and a random sample from Reddit. In the main diagonal we show just the jaccard similarity for the random sample. The color on the background of the plot shows the overlap between the two communities. The overlap is normalized by the size of the community presented in the rows.

through time, like MGTOW, TRP, and Incels. Last, subreddits where toxicity scores decrease like Criticism.

Take-aways. Communities related to criticizing the Manosphere as well as Incels communities within mainstream platforms like Reddit exhibit a substantial degree of hate speech, as per our analysis based on Google’s Perspective API. In particular, for the latter, we find an increase in hate speech, possibly indicating that users are discussing topics related to the Manosphere in a more hateful manner.

6 Users & Migration

In this section we study the similarities in the user bases of different communities in the Manosphere over time with the goal to understand the migration of users to various communities. Also, we investigate whether users that migrate between the various communities become more toxic. We limit our analyses to our Reddit data, as tracking users across forum is hard and would yield inexact results. We begin by analyzing the intersection of users across the years in the selected subreddits.

User Base Similarity. In Fig. 9, we plot the Jaccard Similarity (lines) and the overlap (background color) between pairs of communities from 2008 to 2018. The Jaccard Similarity ($|A \cap B|/|A \cup B|$) captures the size of the intersection between sets over the union, while the overlap ($|A \cap B|/|A|$) the size of the intersection. Note that, in the figure, the dividing set is the community in the row, so in the second row and the first column (Incels-PUA), the overlap is calculated with the total number of Incels members as the divisor. Finally, the dotted blue line is the control set. To calculate it, we bootstrap N (the same number used as the denominator of the overlap coefficient) users 300 times from a 0.5% random sample from Reddit (see previous

section), and calculate the Jaccard similarity with each of the communities (we compare it to the community corresponding to the column).

The Jaccard similarity between the MGTOW and the MRA subreddits is increasingly high, reaching close to 9% in 2018. This number is higher than the self-similarity of the MGTOW community in its founding years (2012–2014). Looking at the overlap, we can see that initially, the MGTOW community was almost a subset of the MRA community in 2012 (87% overlap) and still had a substantial overlap in 2013 (52%).

The Incels community had more than 10% overlap with the PUA community back in 2010. Remember that the latter was much bigger back then (1,367 vs. 8,632 active users). Similarly, there was a peak in the Jaccard Similarity between the MRA the PUA community around 2010–2011, in the overlap between MGTOW and PUA communities between 2012–2014, and in both the overlap and the Jaccard Similarity between the TRP and PUA between 2012–2014. In fact 25% of the users who commented on the TRP subreddits during their first year of existence (2012) were also active in PUA forums (438 users), and out of the initial users of first years of MGTOW subreddits (2012–2014), 11% also commented in PUA forums in the same year (266 users).

The TRP community has high similarity and overlap with several other communities throughout time. This is particularly interesting given that the TRP community encapsulates various ideas espoused by other Manosphere communities. In its creation, it had high overlap with the PUA (25% in 2012) and the MRA communities (33% also in 2012), and in subsequent years its Jaccard Similarity with these two communities reached around 6%. In the early years of MGTOW, it also presented substantial overlap with the community (more than 35% between

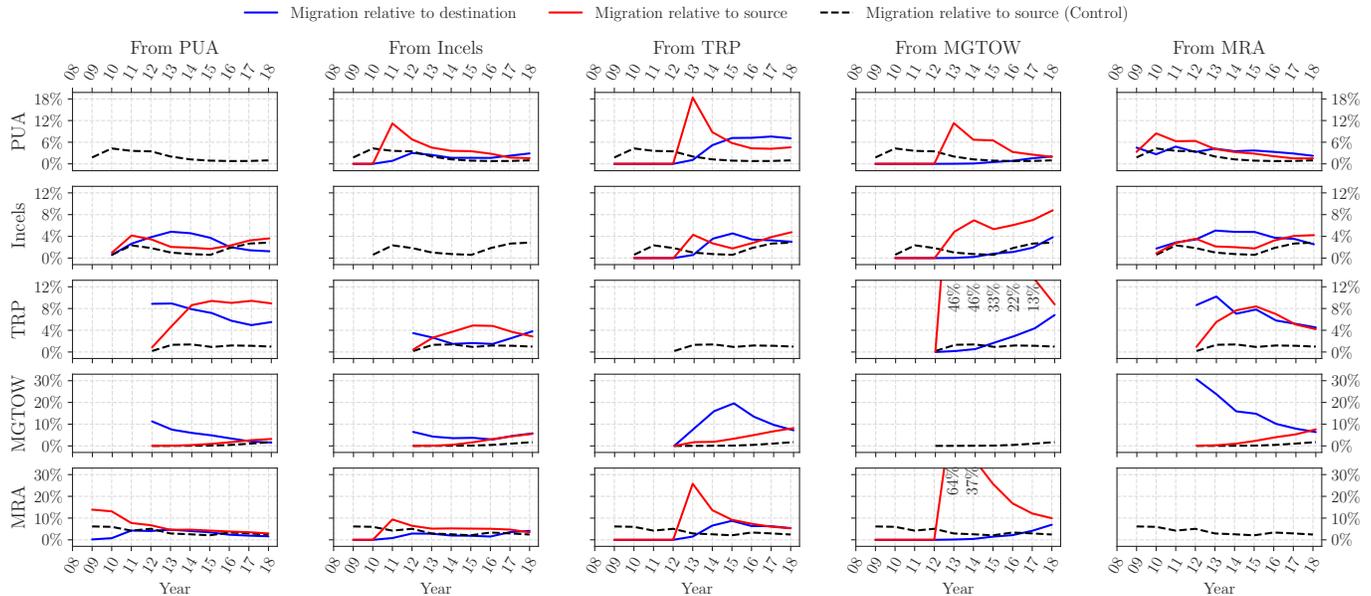


Figure 10: Migration of users among subreddits in the communities of interest. Similarly to Fig. 9, it also reads like a matrix. Each row has a given community as a target and each column has a community as a source. For each given year – as shown in the x-axis – we show the migration from users who posted in the previous year in the community in the column, to the community in the row. The red line shows the number of users that migrated divided by the original number of users in the source community in the previous year (migration relative to the source). The blue line shows the number of users that migrated divided by the number of users in the target community in the given year (migration relative to the destination). On the main diagonal, we show the migration relative to the source for the random Reddit sample.

2012 and 2015). And in more recent years, the Jaccard similarity is more than 6% and the overlap w.r.t. TRP is bigger than 10% between 2016 to 2018. Notice that for the control set, a 95% confidence interval is traced with 2 dashed blue lines, but the lines almost always coincide.

User Migration. Although the previous analysis shows that there are historical intersections between the Manosphere communities on Reddit, it does not show how users navigate through these communities. To better understand such movements, we perform a different study. We begin by tracking users that posted in a community X in a given year i . We then track what percentage of users commented in another community Y during the previous year ($i - 1$). We define the *migration relative to the destination* (MRD) as the number of users from X in the year i we manage to trace in Y in the year $i - 1$, divided by the total number of users in X in the year i . Moreover, we define the *migration relative to the source* (MRS) as the number of users from X in the year i we manage to trace in Y , divided by the total number of users in Y in the year $i - 1$. The former metric tells us, for a given year, what percentage of users can be traced to other community (Y) in the year before, while the latter is the percentage of users from the previous year from Y that migrated to X .

The results for this analysis are shown in Fig. 10. Note that here we also use the random Reddit sample as a control dataset, which is displayed in the diagonal of the main figure. For the control dataset, we show only MRS, because the amount of users in the control dataset is big compared to the other communities, hence the MRD is very high and has no clear interpretation. Also, to avoid tracking control users that are already in

the Manosphere, we consider only users in control who in the previous year have not commented in any of the Manosphere subreddits. The idea here is to understand how the rest of Reddit is migrating to the Manosphere. Our results strengthen the findings obtained in the analysis of the intersection of users among communities.

First, we find that indeed the MRA to MGTOW migration happened. In 2012 and 2013, the early years of MGTOW, 30% and 23% of the commenting users had commented in MRA communities in the year before, respectively. Interestingly, this migration is increasingly less important w.r.t. the MGTOW population, and increasingly more expressive w.r.t. the MRA population. Here, also, the PUA community migrated substantially to the MGTOW and the TRP community, especially in their earlier years. In 2012, around 10% of both the TRP and the MGTOW communities had previously posted in PUA subreddits. For Incels and MRAs, this migration seems less substantial when compared with control. The TRP community has also received substantial migration from the MRA community, in its first 2 years, approximately 10% of the users had commented in MRA the year before. This migration was increasingly substantial relevant to the MRA community, with MRS reaching higher than 8% in 2014 and 2015. Interestingly, in these same years, a very expressive number of members of MGTOW ($> 15\%$ MRD) would be coming from the TRP community.

Toxicity and Migration. Finally, we study the effects of migration on the toxicity of users. We analyze users that commented mostly in two of the five Manosphere communities (had more than 75% of their posts on both, and at least 10% of posts in each), and where the first k posts were exclusively on one of

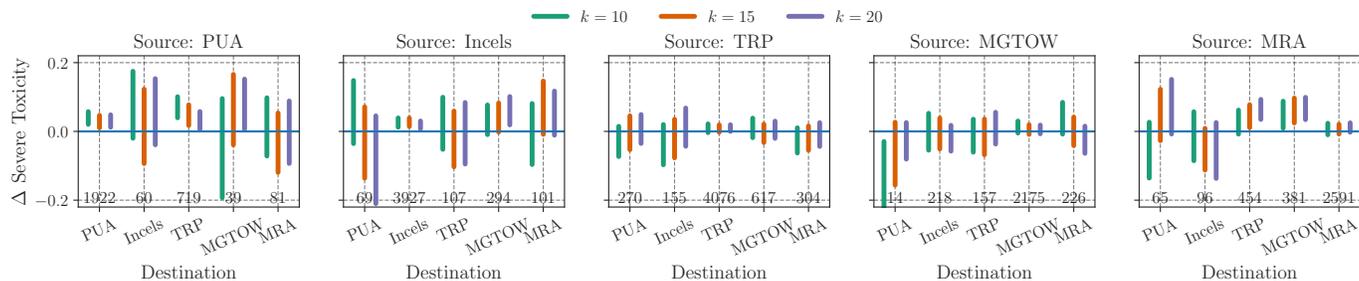


Figure 11: The plot shows the impact of migration on user’s toxicity score. Each plot corresponds to a different source community. On the x-axis, we have the destination communities, and on the y-axis, we have the bootstrapped 95% CI of the average difference between maximum toxicity scores for k comments (for three possible values) before and after the migration.

the communities – which we refer to as the source community – and the last k exclusively on the other – which we refer to as the destination community. Given those $2k$ comments, for each user, we measure the maximum severe toxicity score in the first and in the last k comments, and then calculate the difference. For comparison, we allow the case where source and destination communities are the same — that is, user did not migrate. The confidence intervals for the mean differences, calculated through bootstrapping, are shown on Fig. 11. We show results for three values of k (10, 15, 20) – we also tried with higher values of k but those yield even larger CIs, and are thus omitted due to space. In the figure, we show the total number of users used for each experiment (for the three values of k) in near the x-axis.

Interestingly, we find instances where migration made users more toxic that are aligned with the migratory movements previously observed. Users that originally posted in the MRA community and that migrated to MGTOW (for $k = 10, 15, 20$, CIs [0.009, 0.088], [0.0240, 0.096], [0.034, 0.099] respectively) and the TRP community experienced an increase in toxicity (for $k = 10, 20$, CIs [0.011, 0.077], [0.035, 0.093]). Users coming from PUA also become more toxic after migrating to TRP (for $k = 10, 15, 20$, CIs [0.040, 0.100], [0.017, 0.0780], [0.006, 0.058] respectively). Also note that users who remained in the PUA community also become more toxic with time. This is also the case for Incels, who only became more toxic for $k = 20$ when migrating to the MGTOW community (CI [0.019, 0.102]).

Take-aways. Overall, our analyzes points to the fact that Manosphere communities increasingly share the same user-base, and that there are migratory movements from communities such as MRAs and PUAs to newer ones, such as TRP, MGTOW, and Incels. We also find that some of these movements (PUA to TRP) and (MRA to MGTOW) are associated to an increase in severe toxicity according to perspective API.

7 Conclusion

This paper presented a data-driven characterization of the Manosphere over the last 14 years. We gathered and analyzed a large dataset including dedicated forums and subreddits, and used a typology to divide these into communities. Our analysis provides a partial reconstruction of the Manosphere’s history, along with how its toxicity and hate speech evolved. Older communities, such as Men’s Rights Activists and Pickup Artists,

are becoming less popular and active, while newer communities, like Incels and Men Going Their Own Way, are thriving. We also find that communities increasingly share the same user base, and that there is substantial migration from the communities to the newer ones. Worryingly, the latter are more toxic and espouse nihilistic and extreme anti-women ideologies [37, 65].

Limitations. As discussed in the Toxicity Analysis section, we use Google’s Perspective API, which previous work shows it might be deceived [27], and may exhibit racial biases [59]. However, this is the only publicly available tool (overall, generalizable hate speech classification is an open research problem), which we use to compare across the communities we study. Also, our migration analysis only focuses on Reddit as it is hard to link accounts across multiple forums.

Future Work. Our study not only resonates with existing work on the Manosphere, but also prompts a couple of new research directions. The migration from the MRA community towards MGTOW corroborates with Lilly’s taxonomy [36], in that they are similar in how they see the root of the alleged crisis of masculinity in a feminization of society. Yet, the increasing migration from MGTOW towards Incels—who, according to Lilly, see the crisis of masculinity in the feminization of men—still lacks theoretical explanation: would these individuals be changing their minds? Or are Incels increasingly seeing the crisis of masculinity on society rather than on the individual? Moreover, [23] states that content produced by the Manosphere, despite internal conflicts and contradiction, is united in their adherence to “Red Pill” ideas. In our work, we find evidence – given significant overlap and migration across communities – that these contradictory ideas may very well be steps toward a radicalization pathway. Many of the individuals involved with the PUA community went onto more extreme anti-feminist communities such as TRP, which in turn strongly migrated to MGTOW. In that sense, further work is needed to understand the underlying processes that lead to these shifts in views. Overall, we hope that our study lays the foundation for future work towards answering these questions.

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